

Application No. 10/810,349

Filed: March 26, 2004

TC Art Unit: 3721

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THE CLAIMS

1. (Previously Presented) An apparatus for loading containers with bags, wherein the apparatus comprises:

a feed conveyor assembly;

a loading unit;

control means for forming a layer of bags in the loading unit, the layer having dimensions substantially corresponding to at least one bottom dimension of a container to be loaded;

wherein the loading unit includes a holder which is movable up and down, the holder being sized to be substantially fittingly receivable in the container to be loaded; and

wherein the control means, including a sensor, controls the loading unit to place the layer by moving the holder down into said container to be loaded, at a predetermined distance between a bottom of the layer and a bottom of the container to be loaded, the predetermined distance reported by the sensor to the control means; and

wherein at least during a downward movement, the holder is partly carried by at least one pressure-controlled air cylinder and is partly carried by a drive controlling a vertical position of the holder.

2. (Previously Presented) An apparatus according to claim 1, wherein the feed conveyor assembly comprises a first rotating system and a second rotating system arranged one behind the other, wherein each of the first rotating system and the second rotating system comprises two parallel running conveyor belts

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which are drivable at different speeds in order to rotate the bags in a plane parallel to said running conveyor belts.

3. (Previously Presented) An apparatus according to claim 2, wherein the control means rotates a bag through a first angle of 45 degrees with respect to an orientation of the bag in the layer on the first rotating system and to rotate it through an additional angle of 45 degrees with respect to the first angle of 45 degrees on the second rotating system, wherein the control means further provides the first rotating system, during a processing of a preceding bag on the second rotating system, with signals for handling a following bag on the first rotating system.

4. (Previously Presented) An apparatus according to claim 1, wherein the feed conveyor assembly further includes a plurality of conveyors arranged so as to be movable up and down by at least one end, so that successive bags can be stacked in an overlapping manner.

5. (Previously Presented) An apparatus according to claim 1, wherein the feed conveyor assembly is provided with a stop against which the bags butt after the bags have been conveyed over the feed conveyor assembly in a first conveying direction, wherein, viewed in the first conveying direction, upstream of the stop, the apparatus includes a transfer device capable of placing the bags accumulated against the stop onto a further conveying path of the feed conveyor assembly, wherein the said further conveying path has a second conveying direction

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extending substantially perpendicular to the first conveying direction.

6. (Previously Presented) An apparatus according to claim 5, wherein the further conveying path comprises a collecting belt, having a first feed end and a first discharge end, and a retracting belt, wherein the retracting belt is movable in the second conveying direction, such that a discharge end thereof can be introduced into the loading unit.

7. (Previously Presented) An apparatus according to claim 6, wherein, at each of the first feed end and the first discharge end of the collecting belt, a side plate is included, the side plate being pivotable from a horizontal position with respect to the collecting belt into a vertical position with respect to the collecting belt.

8. (Previously Presented) An apparatus according to claim 6, wherein a discharge end of the collecting belt is arranged so as to be movable up and down, so that the bags can be stacked in an overlapping manner in the second conveying direction as well.

9. (Canceled)

10. (Previously Presented) An apparatus according to claim 1, wherein the holder is provided with an open side via which the holder is loadable from a further conveying path, wherein a bottom of the holder is formed by a flexible curtain which can be pulled away from the bottom.

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11. (Previously Presented) An apparatus according to claim 10, wherein the flexible curtain comprises two curtain parts which are movable from a closed position from a middle of the bottom of the holder away from each other for removing the bottom of the holder, such that a layer of bags can be released from the middle of the bottom of holder.

12. (Canceled)

13. (Previously Presented) An apparatus according to claim 1, wherein the sensor is a mechanical sensor.

14. (Canceled)

15. (Previously Presented) An apparatus according to claim 1, wherein, below the loading unit, a conveying system for containers extends.

16. (Withdrawn) A method for loading a container with bags, wherein the bags are placed from a feed conveyor assembly onto a bottom of a holder of a loading unit, wherein, subsequently, when the whole bottom of the holder of the loading unit has been filled with bags, this holder is lowered into a container to be filled and the bottom is released when the bottom of the holder is just above the bottom of the container to be filled or a layer of bags present in this container.

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17. (Withdrawn) A method according to claim 16, wherein the release of the bottom of the holder takes place in that this bottom is manufactured from a flexible curtain which can be pulled away for the purpose of releasing the bottom.

18. (Withdrawn) A method according to claim 16, wherein, in the feed conveyor assembly, the bags are oriented by means of two rotating systems arranged one behind the other which each comprise two parallel running conveyor belts drivable at different speeds, wherein the first rotating system rotates a bag through 45 degrees and the second rotating system rotates the bag, by then rotated through 45 degrees, again through a further 45 degrees.

19. (Previously Presented) An apparatus according to claim 4, wherein:

the feed conveyor assembly is provided with a stop against which the bags butt after the bags have been conveyed over the feed conveyor assembly in a first direction, wherein, viewed in a first conveying direction, upstream of the stop, the apparatus includes a transfer device capable of placing the bags accumulated against the stop onto a further conveying path of the feed conveyor assembly, wherein the said further conveying path has a second conveying direction extending substantially perpendicular to the first conveying direction;

the further conveying path comprises a collecting belt and a retracting belt, wherein the retracting belt is movable in the second conveying direction, such that a discharge end thereof can be introduced into the loading unit; and

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at each of the first feed end and the first discharge end of the collecting belt, a side plate is included, the side plate being pivotable from a horizontal position with respect to the collecting belt into a vertical position with respect to the collecting belt.

20. (Previously Presented) An apparatus according to claim 7, wherein a discharge end of the collecting belt is arranged so as to be movable up and down, so that the bags can be stacked in an overlapping manner in the second conveying direction as well.

21. (Previously Presented) An apparatus according to claim 19, wherein:

the holder is provided with an open side via which the holder is loadable from the further conveying path, wherein a bottom of the holder is formed by a flexible curtain which can be pulled away from the bottom;

the flexible curtain comprises two curtain parts which are movable from a closed position from a middle of the bottom of the holder away from each other for removing the bottom of the holder, such that a layer of bags can be released from the middle of the bottom of holder; and

below the loading unit, a conveying system for containers extends.

22. (Previously Presented) An apparatus according to claim 20, wherein:

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the holder is provided with an open side via which the holder is loadable from the further conveying path, wherein a bottom of the holder is formed by a flexible curtain which can be pulled away from the bottom;

the flexible curtain comprises two curtain parts which are movable from a closed position from a middle of the bottom of the holder away from each other for removing the bottom of the holder, such that a layer of bags can be released from the middle of the bottom of holder; and

below the loading unit, a conveying system for containers extends.

23. (Withdrawn) A method according to claim 17, wherein, in the feed conveyor assembly, the bags are oriented by means of two rotating systems arranged one behind the other which each comprise two parallel running conveyor belts drivable at different speeds, wherein the first rotating system rotates a bag through 45 degrees and the second rotating system rotates the bag, by then rotated through 45 degrees, again through a further 45 degrees.